CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/WNo.06/KRIDL/WMM/Gradation/2014-15

14.07.2014

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.

Agency : **Technical Manager,** KRIDL, Bangalore.

Name of Work : Improvements to roads and drains at Hegadenagara Cross Roads in 1st and 2nd Main Roads in Ward No. 06 in Hegadenagara Village Limits, BBMP, Bangalore.

Reference : AEE/Byatarayanapura/BBMP/421/2014-15 dated: 10.07.2014

Date of Testing : 14.07.2014

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **29055**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	968	968	3.3	96.7	95-100
22.4	9125	10093	34.7	65.3	60-80
11.2	5236	15329	52.8	47.2	40-60
4.75	4157	19486	67.1	32.9	25-40
2.36	3528	23014	79.2	20.8	15-30
0.600	2457	25471	87.7	12.3	8-22
0.075	2689	28160	96.9	3.1	0-8

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Civil-Tech Consultants & Engineers Bangalore

VISHWANATH .C
Quality Manager

ಸಹಾಯಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

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ಬಿಬಿಎಂಪಿ, ಬೆಂಗಳೂರು-24

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Job No.: CTCE/BBMP/WNo.06/KRIDL/WMM/AIV/2014-15

14.07.2014

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Improvements to roads and drains at Hegadenagara Cross Roads in 1st and 2nd Main Roads in Ward No. 06 in Hegadenagara Village Limits, BBMP, Bangalore.
Reference	AEE/Byatarayanapura/BBMP/421/2014-15 dated: 10.07.2014
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	14.07.2014

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	382	385	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	81	84	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	301	301	
4	Aggregate Impact value = percent fines	21.20	21.82	
	100* (W_2/W_1)%			21.51

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Job No.: CTCE/BBMP/WNo.06/KRIDL/WMM/Shape.T/2014-15 : 14.07.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	: **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager,** KRIDL, Bangalore.
Name of Work	: Improvements to roads and drains at Hegadenagara Cross Roads in 1st and 2nd Main Roads in Ward No. 06 in Hegadenagara Village Limits, BBMP, Bangalore.
Reference	: AEE/Byatarayanapura/BBMP/421/2014-15 dated: 10.07.2014
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Wet Mix Macadam
Date of Testing	: 14.07.2014

Result : Flakiness Index = **11.87%**

Elongation Index = **13.94%**

Result : Combined Flakiness & Elongation index **25.81%**

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/WNo.06/KRIDL/QB/2014-15 25.07.2014

TEST REPORT

CLIENT	:	**Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
AGENCY	:	**Technical Manager,** KRIDL, Bangalore.
NAME OF THE WORK	:	Improvements to roads and drains at Hegadenagara Cross Roads in 1st and 2nd Main Roads in Ward No. 06 in Hegadenagara Village Limits, BBMP, Bangalore.
REFERENCE	:	AEE/Byatarayanapura/BBMP/421/2014-15 dated: 10.07.2014
SOURCE OF LOCATION	:	Hot Mix Plant, Bangalore.
DATE OF TESTING	:	25.07.2014

The results of the tests conducted on the bitumen sample.

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	IS :1203 -1978 (RA-2009)	64	60 to 70
2	Softening point, ^{0}C	IS :1205 -1978 (RA-2009)	46	Min. 45
3	Ductility at 27^{0}C, cm	IS :1208 -1978 (RA-2009)	100 >	Min. 50
4	Flash Point, ^{0}C	IS :1209 -1978 (RA-2009)	294	Min. 220

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Job No.: CTCE/BBMP/WNo.06/KRIDL/SDBC/Bitumen/2014-15 28.07.2014

BITUMEN DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AS per IRC : SP : 11 - 1984

CLIENT	**Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager,** KRIDL, Bangalore.
NAME OF THE WORK	Improvements to roads and drains at Hegadenagara Cross Roads in 1st and 2nd Main Roads in Ward No. 06 in Hegadenagara Village Limits, BBMP, Bangalore.
REFERENCE	AEE/Byatarayanapura/BBMP/421/2014-15 dated: 10.07.2014
SAMPLE I/D	Hegadenagara Main Road left side Cross Roads in Ward No. 06
DATE OF TESTING	28.07.2014

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475.5	476.5
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	24.5	23.50
7. Bitumen content in %	4.90	4.70
8. Average	**4.80**	

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Job No.: CTCE/BBMP/WNo.06/KRIDL/SDBC/Gradation/2014-15 28.07.2014

GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

As per IS : 2386 and IRC : SP : 11 - 1984

CLIENT	**Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager,** KRIDL, Bangalore.
NAME OF THE WORK	Improvements to roads and drains at Hegadenagara Cross Roads in 1st and 2nd Main Roads in Ward No. 06 in Hegadenagara Village Limits, BBMP, Bangalore.
REFERENCE	AEE/Byatarayanapura/BBMP/421/2014-15 dated: 10.07.2014
SAMPLE I/D	Hegadenagara Main Road left side Cross Roads in Ward No. 06
DATE OF TESTING	28.07.2014

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	22.64	4.76	4.76	95.24	90-100
4.75	247.92	52.14	56.90	43.10	35-51
2.36	52.31	11.00	67.90	32.10	24-39
1.18	26.58	5.59	73.49	26.51	15-30
0.3	59.64	12.54	86.03	13.97	9-19
0.075	38.14	8.02	94.05	5.95	3-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	32.15	6.75	6.75	93.25	90-100
4.75	255.64	53.65	60.40	39.60	35-51
2.36	47.96	10.07	70.46	29.54	24-39
1.18	42.15	8.85	79.31	20.69	15-30
0.3	37.48	7.87	87.17	12.83	9-19
0.075	41.15	8.64	95.81	4.19	3-8

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